C++ lab manual

1. Matrix Inversion -take as input, a value n from the user. Create a 2D integer array A of size n x n. Input the square matrix from the user. Compute the inverse of the matrix named as B. Display the inverse and verify that AB = I (unit matrix of size n x n)

2. Longest common subsequence: Take as input two strings A and from the user (not necessarily of equal size), find the length of longest common subsequence present in both of them and display one such subsequence.

3. Create a class Complex, the object of which represents a complex number. The class has two data members real and imaginary. Implement member functions to add, subtract, multiply and divide two complex numbers.

4. In any card game, there are 52 cards: 13 of each suite. There are 4 suits: SPADE, HEART, DIAMOND and CLUB. There are 13 ranks in each suite from TWO to TEN and then JACK, QUEEN, KING,ACE.Create two enumerated data types, one for Suit and another for Rank

5. Write a Program to read the element of the given two matrixes & to perform the matrix multiplication.

6. Write a Program to exchange the contents of two variables by using (a) call by value (b) Call by reference.

7. Write a program to show Function Overloading in a C++ program

8. Write a Program to generate a series of Fibonacci Nos. using the constructor where the constructor member function defines (a) is the scope of class definition itself (b) out of the class definitions using the scopeResolutions operator. Also make this program with the help of the copy constructor.

9 Write a Program to demonstrate how ambiguity is avoided using scope resolution operator in the followingInheritance (a) Single inheritance (b) Multiple inheritances

10 Write a program to show inside & outside definition of data member of the class, also write a program to access private member function.

11 Write a program to show the functions of static data member & static member function.

12 Write a program to show the method of object as a function argument.

13 Write a program to gswap 2 number using friend function, Also show returning of object in a class.

14 Write a program to Fshow multiple constructors in a class, copy constructor, dynamic constructor & destructor in a class.

15Write a program to show operator overloading in unary operator, binary operator.

16 Write a program to show multiple inheritance & hybrid inheritance

17Write a Program to Bubble Sort Using template function.

18 Write a Program to perform the swapping of two data items of integer, floating point number and charactertype with the help of function overloading.

19. Write a Program to generate a Fibonacci series by overloading a. Prefix Operator b. Postfix Operator.

20. Write a Program to access the private data of a class by non-member function through friend function where the friend function is declared: (1) is the location of public category (2) is the location of private category (3) within the scope of a class definition itself (4) Defined with inline code subtraction.

21. Write a Program to demonstrate how a pure virtual function defined declared and invoked from the object ofderived class through the pointer of the base class.

22. Write a Program for invoking Generate & Handle exception.

23. Write a program for calculating interest amount making use of default arguments.

24. Write a program for managing bank accounts giving the customer with the facility of depositing and withdrawal money from the account.

25. Write a program to display menu regarding rectangle operations of calculating area, perimeter, and diagonal and performing according to the user's option.

26. Write a program to print the largest element of an array using a function.

27. Write a program to the sales of 5 salesmen in 4 quarters and print the total sales of each salesman.

28. Write a program for passing structure to function through call by value and call by reference method.

29. Write a program to calculate simple interest by overloading the interest function.

30. Write a program defining a class to store the prices for 50 items and find the largest and total of all the prices.

31. Write a program to perform sorting on array using class and objects.

32. Write a program to print the Pascal's triangle.

33. Write a program to calculate area using constructor overloading

34. Write a program to add time using class

35. Write a program to add date using class.

36. Write a program to add complex numbers using operator overloading

37. Write a program to merge two arrays and sort it.

38. Write a program to print n^{th} term of an expression of an Arithmetic, Geometric or Harmonic Progression, as chosen by the user, and implement it using a class.

39. Write a program to create class book with details and find a book by its title.

40. Write a program to implement sorting using templates.

41. Write a program to sorting using pointers.

42. Write a program to swap all the possible numerical values type using templates.

43. To create a bank account using structures in C++.

44. To write a program to merge two arrays and sort them.

45.To write a program to find all the Pythagorean triplets between 100 to 1000.

46.To write a program to convert numbers from:1.Decimal to binary2.Binary to octal3.Octal to hexadecimal4.Hexadecimal to decimal

47.To write a program to define a friend function which adds meters, centimeters and feet, inches and gives answer in feet and inches.

48. Write a program to define various string utility functions.

49. To write a program to convert polar coordinates into rectangular form and vice versa using type conversion.

50. To write a program to manage an employee-record using inheritance.

51. To write a program to manage a book-record using inheritance.

52. To write a program to read a file and write data into other file.

53. To write a program to save student record in a file using file handling.

54. Addition of two numbers using class template.

55. To swap two numbers using function template.

56. Program to display largest among two numbers using function templates.

57. Program to make functions of calculator using class template.

58. Write a C++ program which counts numbers of vowels in a given string and tell every index where a vowel is found.